

AMENDMENTS TO THE CLAIMS

Claim 1 (Currently Amended) A particular program detection device for detecting a particular program segment in a program signal including audio data of a program, the particular program detection device comprising:

a noise level detecting section operable to detect a noise level of the audio data included in the program signal;

a detection sensitivity determining section operable to determine a detection sensitivity for detecting a particular program in the program signal, the detection sensitivity being determined based on the noise level detected by the noise level detecting section;

a silent portion detecting section operable to (i) set a ~~threshold value, the set threshold value being a minimum hold value as a threshold value~~, wherein the ~~set~~ minimum hold value ~~holds~~ represents a minimum value of the audio data included in the program signal, ~~follows a detected noise level, which is smaller than an immediately previous hold value, each time when the noise level is detected, and, during a period of time while the minimum value is not detected in the audio data, the minimum hold value gradually increases from the minimum value at a predetermined rate with respect to an elapse of time during a time when a noise level smaller than the minimum hold value is not detected~~, (ii) change ~~the predetermined rate of increasing a rate of the increase of~~ the minimum hold value, such that after a minimum time, during which ~~the particular program can be detected, has elapsed since a time when the audio data is the minimum value, the minimum hold value is clipped at an audio level determined by according to~~ the detection sensitivity determined by the detection sensitivity determining section, and (iii) detect a silent portion of the audio data included in the program signal using the set threshold value; and

a particular program determining section operable to determine a time interval between each silent portion detected by the silent portion detecting section to determine the particular program segment.

Claim 2 (Previously Presented) The particular program detection device according to claim 1, further comprising:

a noise level learning section operable to learn an association between the noise level currently detected by the noise level detecting section and a previously detected noise level; and
a noise level storing section operable to store a learned noise level learned by the noise level learning section,

wherein the detection sensitivity determining section determines the detection sensitivity based on the learned noise level stored in the noise level storing section.

Claim 3 (Previously Presented) The particular program detection device according to claim 2,

wherein the particular program detection device further comprises a program information obtaining section operable to obtain program information from the program signal,

wherein the noise level storing section stores the learned noise level in association with the program information obtained by the program information obtaining section, and

wherein the detection sensitivity determining section obtains the learned noise level associated with the program information from the noise level storing section in accordance with the program information obtained by the program information obtaining section, and determines

the learned noise level as the detection sensitivity to be used when the particular program is detected.

Claim 4 (Previously Presented) The particular program detection device according to claim 1, further comprising a broadcast reception section operable to receive broadcast waves carried in the program signal, and operable to output the received program signal to the noise level detecting section and the silent portion detecting section.

Claim 5 (Previously Presented) The particular program detection device according to claim 1, further comprising a data read section operable to read the program signal from a storage device in which the program signal is recorded, and operable to output the read program signal to the noise level detecting section and the silent portion detecting section.

Claim 6 (Cancelled)

Claim 7 (Previously Presented) The particular program detection device according to claim 1, wherein, when the particular program is a CM, a time constant, which causes the increase of the minimum hold value, is determined, such that the increase of the minimum hold value is clipped to a predetermined value in 15 seconds, which is a minimum time which can be taken by a CM.

Claim 8 (Currently Amended) A particular program detection method executed by a device for detecting a particular program segment in a program signal including audio data of a program, the particular program detection method comprising:

detecting a noise level of the audio data included in the program signal;

determining a detection sensitivity for detecting a particular program in the program signal, the detection sensitivity being determined based on the detected noise level;

~~setting a threshold value, the set threshold value being a minimum hold value as a threshold value, wherein the set minimum hold value holds represents a minimum value of the audio data included in the program signal, follows a detected noise level, which is smaller than an immediately previous hold value, each time when the noise level is detected, and, during a period of time while the minimum value is not detected in the audio data, the minimum hold value gradually increases from the minimum value at a predetermined rate with respect to an elapse of time during a time when a noise level smaller than the minimum hold value is not detected;~~

~~changing the predetermined rate of increasing a rate of the increase of the minimum hold value, such that after a minimum time, during which the particular program can be detected, has elapsed since a time when the audio data is the minimum value, the minimum hold value is clipped at an audio level determined by according to the determined detection sensitivity;~~

detecting a silent portion of the audio data included in the program signal using the set threshold value; and

determining a time interval between each detected silent portion to determine the particular program segment.

Claim 9 (Currently Amended) A non-transitory computer-readable recording medium having a program recorded thereon, the program causing a program detection device to execute a method of detecting a particular program segment in a program signal including audio data of a program, the method comprising:

detecting a noise level of the audio data included in the program signal;

determining a detection sensitivity for detecting a particular program in the program signal, the detection sensitivity being determined based on the detected noise level;

~~setting a threshold value, the set threshold value being a minimum hold value as a threshold value, wherein the set minimum hold value holds represents a minimum value of the audio data included in the program signal, follows a detected noise level, which is smaller than an immediately previous hold value, each time when the noise level is detected, and, during a period of time while the minimum value is not detected in the audio data, the minimum hold value gradually increases from the minimum value at a predetermined rate with respect to an elapse of time during a time when a noise level smaller than the minimum hold value is not detected;~~

~~changing the predetermined rate of increasing a rate of the increase of the minimum hold value, such that after a minimum time, during which the particular program can be detected, has elapsed since a time when the audio data is the minimum value, the minimum hold value is clipped at an audio level determined by according to the determined detection sensitivity;~~

detecting a silent portion of the audio data included in the program signal using the set threshold value; and

determining a time interval between each detected silent portion to determine the particular program segment.

Claim 10 (Currently Amended) An integrated circuit for use in a particular program detection device for detecting a particular program segment in a program signal including audio data of a program, wherein the integrated circuit includes circuits functioning as:

a noise level detecting section operable to detect a noise level of the audio data included in the program signal;

a detection sensitivity determining section operable to determine a detection sensitivity for detecting a particular program in the program signal, the detection sensitivity being determined based on the noise level detected by the noise level detecting section;

a silent portion detecting section operable to (i) set a threshold value, the set threshold value being a minimum hold value as a threshold value, wherein the set minimum hold value holds represents a minimum value of the audio data included in the program signal, follows a detected noise level, which is smaller than an immediately previous hold value, each time when the noise level is detected, and, during a period of time while the minimum value is not detected in the audio data, the minimum hold value gradually increases from the minimum value at a predetermined rate with respect to an elapse of time during a time when a noise level smaller than the minimum hold value is not detected, (ii) change the predetermined rate of increasing a rate of the increase of the minimum hold value, such that after a minimum time, during which the particular program can be detected, has elapsed since a time when the audio data is the minimum value, the minimum hold value is clipped at an audio level determined by according to the detection sensitivity determined by the detection sensitivity determining section, and (iii) detect a silent portion of the audio data included in the program signal using the set threshold value; and

a particular program determining section operable to determine a time interval between each silent portion detected by the silent portion detecting section to determine the particular program segment.